



Substituted form 1449/PTO

**(Use as many sheets as necessary)**

Sheet	1	of	2
-------	---	----	---

PTO/SB/08A (04-07)

Approved for use through 09/30/2007. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

**Complete if Known**

Application Number	10/686,882
Filing Date	October 15, 2003
First Named Inventor	Kenneth Williams
Art Unit	2186
Examiner Name	Shane M. Thomas
Attorney Docket Number	PA2594US

## U. S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

[illegible]

**Examiner  
Signature**

/Shane Thomas/

Date Considered

02/12/2008

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/686,882
Filing Date	October 15, 2003
First Named Inventor	Kenneth Williams
Art Unit	2186
Examiner Name	Shane M. Thomas
Attorney Docket Number	PA2594US

Sheet 2 of 2

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/SMT/		FRANCISCO BARAT, et. al., " Reconfigurable Instruction Set Processors: A Survey," IEEE 2000.	
/SMT/		SHEKHAR BORKAR et al., "iWarp: An Integrated Solution to High-Speed Parallel Computing," IEEE 1988.	
/SMT/		PEDRO DINIZ, et al. "Automatic Synthesis of Data Storage and Control Structures for FPGA-based Computing Engines," 2000 IEEE, pages 91-100.	
/SMT/		RICARDO E. GONZALES, "XTENSA: A Configurable and Extensible Processor," March-April 2000, IEEE Micro, pages 60-70.	
/SMT/		MICHAEL BEDFORD TAYLOR et al., "The Raw Microprocessor: A Computational Fabric for Software Circuits and General-Purpose Programs," March-April 2002, IEEE Micro, pages 25-35.	
/SMT/		ELLIOT WAINGOLD et al., "Baring It All to Software: Raw Machines," Computer, September 1997, 1997 IEEE, pages 86-93.	

Examiner Signature	/Shane Thomas/	Date Considered	02/12/2008
--------------------	----------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



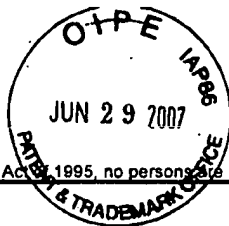
IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Kenneth Mark Williams et al.  
APPLICATION NO.: 10/686,882  
FILED: October 15, 2003  
TITLE: Instruction Set for Efficient Bit Stream and Byte Stream I/O  
EXAMINER: Shane M. Thomas  
GROUP ART UNIT: 2186  
ATTY.DKT.NO.: PA2594US

COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450

**List of Co-Pending Patents or Patent Applications That May Be Directed  
Towards Similar Subject Matter**

Examiner's Initials	Application Number	First-Named Inventor	Title	Filing Date
/SMT/	10/630,542	Kenneth Williams	Defining Instruction Extensions in a Standard Programming Language	07-29-2003
/SMT/	10/404,706	Scott D. Johnson	Extension Adapter	03-31-2003
/SMT/	10/394,824	Charle' Rupp	Transitive Processing Unit for Performing Complex Operations	03-21-2003
/SMT/	10/750,714	Ricardo Gonzalez	Systems and Methods for Software Extensible Multi-Processing	12-31-2003
/SMT/	10/815,453	Ricardo Gonzalez	Configuring a Multi-Processor System	03-31-2004
/SMT/	11/021,247	Ricardo Gonzalez	Systems and Methods for Selecting Input/Output Configuration in an Integrated Circuit	12-21-2004
/SMT/	11/129,146	Ricardo Gonzalez	Long Instruction Word Processing with Instruction Extensions	05-12-2005
/SMT/	11/099,280	Jeffrey M. Arnold	Video Processing System with Reconfigurable Instructions	04-04-2005
/SMT/	11/204,555	Jeffrey M. Arnold	Programmable Logic Configuration for Instruction Extensions	08-15-2005
Examiner's Signature:				Date



PTO/SB/08A (09-08)

Approved for use through 03/31/2007. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1 of 4

**Complete if Known**

Application Number	10/686,882
Filing Date	October 15, 2003
First Named Inventor	Kenneth Mark Williams
Art Unit	2186
Examiner Name	Shane M. Thomas
Attorney Docket Number	PA2594US

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
/SMT/		US- 6,237,079 B1	05-22-2001	Stoney	
		US-			
/SMT/		US- 5,847,578	12-08-1998	Noakes et al.	
/SMT/		US- 6,415,424 B1	07-02-2002	Arimilli et al.	
/SMT/		US- 6,795,900 B1	09-21-2004	Miller et al.	
/SMT/		US- 5,682,493	10-28-1997	Yung et al.	
/SMT/		US- 6,219,628 B1	04-17-2001	Kodosky et al.	
/SMT/		US- 5,652,875	07-29-1997	Taylor	
/SMT/		US- 5,696,956	12-09-1997	Razdan et al.	
/SMT/		US- 5,784,636	07-21-1998	Rupp	
/SMT/		US- 5,819,064	10-06-1998	Razdan et al.	
/SMT/		US- 6,732,354 B2	05-04-2004	Ebeling et al.	
/SMT/		US- 2003/0097546 A1	05-22-2003	Taylor	
/SMT/		US- 2003/0108119 A1	06-12-2003	Mohebbi et al.	
/SMT/		US- 6,721,884 B1	04-13-2004	De Oliveira Kastrup Pereira et al.	
/SMT/		US- 6,426,648 B1	07-30-2002	Rupp	
/SMT/		US- 7,062,520 B2	06-13-2006	Rupp	
/SMT/		US- 6,857,110 B1	02-15-2005	Rupp et al.	
/SMT/		US- 6,744,274 B1	06-01-2004	Arnold et al.	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				
/SMT/		TW 480818	03-21-2002	Adaptive Silicon, Inc.		
/SMT/		TW 509798	11-11-2002	Adaptive Silicon, Inc.		
/SMT/		TW 478252	03-01-2002	Adaptive Silicon, Inc.		
/SMT/		EP 1 443 417	08-04-2004	STMicroelectronics		

Examiner  
Signature

/Shane Thomas/

Date  
Considered

02/12/2008

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.18 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet **2** of **4****Complete if Known**

Application Number	10/686,882
Filing Date	October 15, 2003
First Named Inventor	Kenneth Mark Williams
Art Unit	2186
Examiner Name	Shane M. Thomas
Attorney Docket Number	PA2594US

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
/SMT/		US- 6,874,110 B1	03-29-2005	Camarota	
/SMT/		US- 6,292,388 B1	09-18-2001	Camarota	
/SMT/		US- 6,418,045 B2	07-09-2002	Camarota	
/SMT/		US- 7,000,211 B2	02-14-2006	Arnold	
/SMT/		US- 6,954,845	10-11-2005	Arnold et al.	
/SMT/		US- 6,698,015 B1	02-24-2004	Moberg et al.	
/SMT/		US- 6,799,236 B1	09-28-2004	Dice et al.	
/SMT/		US- 5,822,588	10-13-1998	Sterling et al.	
/SMT/		US- 6,817,013 B2	11-09-2004	Tabata et al.	
/SMT/		US- 6,968,544 B1	11-22-2005	Schneider	
/SMT/		US- 7,178,062 B1	02-13-2007	Dice	
/SMT/		US- 4,766,569	08-23-1998	Turner et al.	
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date, MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

Examiner  
Signature

/Shane Thomas/

Date  
Considered

02/12/2008

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 801.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.18 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/686,882
Filing Date	October 15, 2003
First Named Inventor	Kenneth Mark Williams
Art Unit	2186
Examiner Name	Shane M. Thomas
Attorney Docket Number	PA2594US

Sheet

3

of

4

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/SMT/		GARLAN, DAVID and MARY SHAW, "An Introduction to Software Architecture," January 1994, CMU-CS-94-166, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA.	
/SMT/		INTEL and HEWLETT-PACKARD, "IA-64 Application Instruction Set Architecture Guide," Revision 1.0, 1999, pp. C-1 through C.	
/SMT/		DEHON, ANDRE, "Transit Note #118 Notes on Coupling Processors with Reconfigurable Logic," M.I.T. Transit Project, Last Updated March 21, 1995.	
/SMT/		HWANG, KAI, "Advanced Computer Architecture: Parallelism, Scalability, Programmability," 1993, McGraw Hill, pp. 182-183.	
/SMT/		YE, Z.A. et al., "CHIMAERA: a high-performance architecture with a tightly-coupled reconfigurable functional unit," June 10-14, 2000, Proc. of the 27th International Symposium on Computer Architecture, pp. 225-235.	
/SMT/		LEE, K.C., "A Virtual Bus Architecture for Dynamic Parallel Processing," February 1993, IEEE Transactions on Parallel and Distributed Systems, Vol. 4, No. 2, pp. 121-130.	
/SMT/		GOLDBLATT, KIM, "The Low-Cost, Efficient Serial Configuration of Spartan FPGAs," November 13, 1998, XAPP098 (Version 1.0), XILINX.	
/SMT/		SCOTT, STEVEN L. and GREGORY M. THORSON, "The Cray T3E Network: Adaptive Routing in a High Performance 3D Torus," August 15-16, 1996, HOT Interconnects IV, Stanford University.	
/SMT/		GOLESTANI, S. JAMALODDIN, "A Stop-and-Go Queuing Framework for Congestion Management," 1990, Proc. of the ACM Symposium on Communications Architectures & Protocols, ACM Press, New York, NY, pp. 8-18.	
/SMT/		DALLY, WILLIAM J. and CHARLES L. SEITZ, "Deadlock Free Message Routing in Multiprocessor Interconnection Networks," May 10, 1985, Computer Science Department, California Institute of Technology.	

Examiner Signature	/Shane Thomas/	Date Considered	02/12/2008
--------------------	----------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/686,882
Filing Date	October 15, 2003
First Named Inventor	Kenneth Mark Williams
Art Unit	2186
Examiner Name	Shane M. Thomas
Attorney Docket Number	PA2594US

Sheet 4 of 4

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
/SMT/		MIPS Technologies, Inc., "MIPS Extension for Digital Media with 3D," 1996, pp. 1-26.	
/SMT/		BORGATTI, MICHELE et al., "A Reconfigurable System featuring Dynamically Extensible Embedded Microprocessor, FPGA and Customisable I/O," 2002, IEEE Custom Integrated Circuits Conference, pp. 1-4.	
/SMT/		RAZDAN, RAHUL and MICHAEL D. SMITH, "A High-Performance Microarchitecture with Hardware-Programmable Functional Units," November 1994; Proc. of MICRO-27, pp. 1-9.	

Examiner Signature	/Shane Thomas/	Date Considered	02/12/2008
--------------------	----------------	-----------------	------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.